

L 16591-66 EWT(1)/FCC GW
ACC NR: AT6006610

SOURCE CODE: UR/2531/65/000/181/0014/0045

AUTHOR: Drozov, O. A. (Doctor of geographical sciences); Orlova, V. V.; Shver, Ts. A. 24
B+1

ORG: Main Geophysical Observatory im. A. I. Voyeykov (Glavnaya geofizicheskaya observatoriya) 12, 44, 55

TITLE: Optimum duration of an averaging period in climatological investigations

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 181, 1965. Voprosy obshchey i sinopticheskoy klimatologii (Problems in general and synoptic climatology), 14-45

TOPIC TAGS: ~~atmospheric phenomenon~~, atmospheric temperature, atmospheric precipitation, meteorologic observation, *climatic condition*

ABSTRACT: Current problems concerning the selection of duration of an averaging period in meteorological observations have been investigated. A new experimental method of checking the degree of climatic stabilities, based on a number of atmospheric temperature and precipitation observations has been suggested. The authors present tabulated data on average differences between mean temperatures

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for 10-, 25- and 50-year periods with temperatures for individual subsequent years and data on precipitation. Orig. art. has: 2 figures and 3 tables.
[Based on author's abstract]

SUB CODE: 04/ SUBM DATE: none/

Card 2/2 *net*

L 29564-66 EWT(1)/FCC GW
ACC NR: AT6006615

SOURCE CODE: UR/2531/55/000/181/0114/0120

AUTHOR: Kuznetsova, L. P.; Shver, Ts. A.

20
B+1

ORG: none

TITLE: Effect of the Caspian Sea on coastal temperature conditions from data accumulated by the Gasan-Kuli weather station

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 181, 1965. Voprosy obshchey i sinopticheskoy klimatologii (Problems in general and synoptic climatology), 114-120

TOPIC TAGS: climatology, weather station, atmospheric temperature

ABSTRACT: The records of the Gasan-Kuli weather station are analyzed to determine the effect of a large body of water (the Caspian Sea) on air temperature. The changes in thermal conditions on the eastern coast of the sea are quantitatively determined as a function of the drop in sea level. There has been a reduction in sea level from 291 cm in 1927 to 183 cm in 1958 which has exposed a considerable portion of the bottom. This change has affected both the average air temperature and the amplitude of the yearly variation in air temperature. It is shown that the minimum average yearly temperature has decreased by nearly two degrees. The exposure of the sea bottom has also had a considerable effect on the average monthly air temperature, the maximum air tempera-

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BOOK EXPLOITATION

S/

8
241Shver, Tsilya Abramovna

12

A study of the results of rain-gauge and precipitation-gauge observations (Issledovaniye rezul'tatov nablyudeniya po dozhdemeru i osadkomeru) Leningrad, Gidrometeoizdat, 1965. 169 p., illus., biblio., append. Errata slip inserted. 900 copies printed. (At head of title: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR. Glavnaya geofizicheskaya observatoriya im. A. I. Voyeykova). Editor: L. I. Shtannikova; Technical editor: G. V. Ivkova; Proofreaders: Z. A. Belkina, K. I. Rozinova

TOPIC TAGS: atmospheric precipitation, Nipher shield, precipitation gauge, rain gauge, snow gauge, Tretyakov shield

PURPOSE AND COVERAGE: This book was intended for a wide circle of specialists, including meteorologists and hydrologists, working on both practical and design problems. Problems connected with replacing a rain gauge having a Nipher shield with a precipitation gauge having a planar shield of the Tretyakov system are discussed. Conversion factors are derived for solid precipitates at meteorological stations, depending on the wind velocity and the type of shielding installation on the instrument, by special

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classifications.

TABLE OF CONTENTS:

Introduction - - 3

Ch. 1. Status of the problem of calculating atmospheric precipitates in the period of replacing rain gauges with precipitation gauges in the network of stations and posts in the USSR - - 5

Ch. 2. Comparison of quantity of precipitation measured by a rain gauge with a Nipher shield and by a precipitation meter of the Tret'yakov system - - 17

Ch. 3. Comparison of quantity of winter precipitation measured by a precipitation-gauge and by rain-gauge observations with maximum water reserves determined by snow-gauge surveys - - 81

Conclusions - - 109

Literature - - 114

Appendixes - - 123

SUB CODE: ES

SUBMITTED: 26Jan65

NR REF SOV: 185

Card 2/3

ACC NR: AT6036741

SOURCE CODE: UR/2531/66/000/195/0081/0087

AUTHOR: Shver, Ts. A.

ORG: GGO

TITLE: On the problem of relating the amount and number of days with solid, liquid, and mixed precipitation on per monthly basis

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 195, 1966. Voprosy metodiki izmereniya atmosferykh osadkov (Problems in methods of measuring atmospheric precipitation), 81-87

TOPIC TAGS: weather forecasting, atmospheric precipitation, measurement error

ABSTRACT: In order to determine the real amount of precipitation and account for the errors introduced when the different types of precipitation are combines, the author attempts to find the percentage of precipitation of each type on per monthly basis for the European portion of the Soviet Union. The precipitation data from 19 meteorological stations collected during the period from 1936 to 1955 is used for computer analysis. The results are listed in the table giving the percent of solid, liquid, and mixed precipitation during each month for each of the 19 stations. The results show that solid precipitation amounts to 10--30% of the total yearly precipitation. The percentage of liquid precipitation by quantity is greater than that obtained by totaling the number of days per year when the liquid precipitation was observed.

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This relationship is inverse for the solid precipitation. Formulas are given for relating the amount of solid precipitation to the air temperature and the geographical distribution of the given types of precipitation during the transitory months. These formulas, however, are not very accurate. Orig. art. has: 2 formulas and 3 tables.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 002

Card 2/2

USSR/Human and Animal Morphology: Methods and Techniques of Study 3-2

Abstr Jour : Ref Zhur - Biol., 1958, No 92790

Author : Shvets V.M.

Inst : Kuybyshev Society of Pathologico-Anatomists

Title : Roentgenomangiography of Pathological Processes

Orig Pub : Sb. nauchn. rabot Ik. Sverdlovsk. o-va patologic-anatomov s
sotsial. potsefist. Sverdlovsk, 1957, 136-137

Abstract : A method of radiological angiography of body liquids and of
the vessels of organs, connected with other parts of the body
is presented.

Card : 1/1

PRETSITYY, D.F.; SHVER, Ye.M.; MONAYENKOV, A.M.; BOROVIKOVA, Ye.P.;
LABIESKAYA, A.S.

Comparative effectiveness of subcutaneous and intramuscular tetanus
anatoxin injections in vaccination against tetanus. Zhur.mikrobiol.
epid. i immun. 28 no.4:3-10 Ap '57. (MLRA 10:10)

1. Iz Instituta normal'noy i patologicheskoy fiziologii AMN SSSR i
Krasnodarskoy krayevoy sanitarno-epidemiologicheskoy stantsii.
(TETANUS, prev. and control
vacc., comparison of effectiveness of subcutaneous
and intramuscular inject.)

CHUVAKHIN, V.S.; ALEKSANDROV, N.V.; SHVER, Ye.V.

Protection of plants in India. Zashch. rast. ot vred. i bol.
5 no.9:52-55 8 '60. (MIRA 15:6)
(India—Plants, Protection of)

SHVET, YE. V.

SHVET, YE. V. -- "A Centralized Method of Fungicide Treatment of Cotton Seed with Dry Compounds." Min Agriculture USSR, Leningrad Agricultural Institute, Leningrad, 1956. (Dissertation for the Degree of Candidate of Agricultural Sciences)

SO: Knizhnaya Letopis' No 43, October 1956, Moscow

USSR/Chemical Technology -- Chemical Products and Their Application. Pesticides,
I-7

Abst Journal: Referat Zhur - Khimiy, No 1, 1957, 1490

Author: Shver, Ye. V.

Institution: None

Title: Copper Trichlorophenolate as a New Compound in the Standardized
Treatment of Cotton Seeds

Original
Periodical: Sots. s. Kh. Uzbekistana, 1956, No 3, 29-31

Abstract: The utilization of Cu trichlorophenolate (I) in the control of the
cotton boll weevil is described. The pesticide has the following
composition (in percent): I 20, talcum 65, kaolin 15. The dose
is 7 kg per ton of seeds. When the seeds are treated immediately
before planting, the effectiveness of the chemical against the cot-
ton boll weevil (GKh) attains 86% and germination is increased by
6-23%. When the seeds are treated 5, 3, and one month and 5 days
before planting, complete control of GKh is achieved; germination

Card 1/2

USSR/Chemical Technology -- Chemical Products and Their Application. Pesticides,
1.5

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 147

Abstract: is increased by 14% and the yield of cotton wool is increased 11%.
The compound protects the sprouts from root rot.

Card 2/2

[illegible]

Pub. Date : 1965-01-21, 10, 15, 1965

Author . Franklin, A.A., Austin, J.C., K.G., Shaw, M.V.

Encl. : -

Title: The H. H. H. Book of Letters, Vol. 1, H. H. H. Boston.

Orig 1st : C. J. F. Heidebrein, 1850, p. 42-43.

Abstract : *See above.*

Card 1/2

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Cotton Diseases in India. Zashch. rast. ot vrvd. : kol. 9
no. 7:45-48 '64. (MIRA 18:2)

SCHVEREV, B. S. and GOLFAND, K. M.

"Investigation of Low Alloy High Speed Steel Type 912," Metallurg (1940)
No. 9 pp 36/42.

B-86350, 30 Jun 55

and B-58884

and B-84570

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Utilization of waste products in the drug industry. Med.prom. SSSR
12 no.5:3-9 My '53. (MIRA 11:5)

1. Gosudarstvennyy proyektnyy institut po proyektirovaniyu
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1. SIVERNIK, A.M., Eng., LUR'E, Z.S., Eng., NIKOLAEV, V.A., Eng.
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4. Conveying Machinery
7. Gravity chute and glass lining. Mekh. trud. rab. 7, no. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

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BERNSHTEYN, Rafail Lazarevich; SLAVUTSKIY, Samuil Oskarovich;
NEVEL'SHTFYN, Yuriy Grigor'yevich; KONDRATENKO, Leonid
Fedorovich; LASKIN, Anatoliy Aronovich; LUR'YE, Zakhar
Solomonovich; MAKAROV, Vladimir Aleksandrovich; NOVOZHILOV,
M.G., retsenzent; BILLICHENKO, N.Ya., retsenzent; VARSHTAVSKIY,
A.M., retsenzent; TARTAKOVSKIY, B.N., retsenzent. Prinimali
uchastiye: ANTONOV, V.A., inzh.; VERBLYUNSKIY, Yu.I., inzh.;
ZEMSKOV, P.F., otv. red.

[Overall mechanization and automatic control in strip mines]
Kompleksnaya mekhanizatsiya i avtomatizatsiya na kar'erakh.
Moskva, Nedra, 1964. 582 p. (MIRA 18:4)

D. S. Pavlovskii

Сотрудники ССОУБС и Зернотрусы приобщены к работе в Зернохранилищах, также в СССР

M. E. KENNEDY

Разработка унифицированного телеграфического и
изучающего оборудования различного назначения для
телеграфной

P. E. Sussner

P. E. 52500.
F. B. [unclear]

Присоединением к существующим и проектируемым объектам водоснабжения

P. F. ELLIOT

D. E. Barton,
C. E. Lupton

1) элемент структуры лучше из структуры получить
или из метода и значение

11. **ураган**

(с 10 до 16 часов)

В. А. Булаев

С. А. Буланов

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Литература по этому изданию из Мухоморова

20

В. И. Ефремов

Совместимость систем цветного телевидения с 1-м и 2-м поколениями частотой выделены для телевизионных СМР в МКР.

T. B. Coates, 2007

Approved for Release by NSA on 08-09-2013 pursuant to E.O. 13526

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11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847

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Картина является известной в известном театральном
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A.M.; KOVALEV, I.V.; POCHENKOV, K.I.; BARABANOV, P.A.; KRASHNIKOVSKIY, G.V.;
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(MLRA 6:11)

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18
The Design of Joining of Longitudinal and Transverse
Beams in Totally Welded Bridges with Bottom Drive. V. V.
Shvernitskiy and V. I. Trutnyakov. (Autom. Sverba, 1981, 4,
(4) (19), 58-72). (In Russian). Design for joining the above
is discussed. On the basis of static strength and the basis of
fabrication, some definite designs are proposed. Results of
vibrational tests of the above construction are given. V. G.

26

11
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18 K2

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Role of leaves in the accumulation of sugars and the formation of
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1. All-Union Sugar beet scientific research institute. Kiev.
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Operating characteristics of an automobile with a carburetor engine
at high altitudes. Avt.transp. 32 no.2:13-15 P '54. (MLRA 7:6)
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(Automobile drivers)
(Night vision)

SHVETS, A., inzhener-polkovnik

Device for strating engines in winter. Tyl i snab.Sov.Voor.Sil
21 no.1:89 Ja '61. (MIRA 14:6)

(Gas and oil engines---Cold weather operation)

OSIPOV, O.A.; GAYVORONSKIY, V.I.; SHVETS, A.A.

Donor properties of phosphoryl and ester oxygen in tributyl phosphate.
Zhur.neorg.khim. 8 no.9:2190-2193 S '63. (MIRA 16:10)

~~SHVETS, A.D. SVEC, A.D.~~ SHVETS, A.D.

CARD 1 / 2

PA - 1779

SUBJECT
AUTHOR
TITLE
PERIODICAL

USSR / PHYSICS

ESEL'SON, V.N., LAZAREV, B.G., SINEL'NIKOV, K.D., SVEC, A.D.

On Some Peculiarities of Rotating He II.

Žurn. eksp. i teor. fis., 31, fasc. 5, 912-912 (1956)

Issued: 1 / 1957

At first several previous works dealing with this topic are cited. An experimental confirmation of the dependence of the inertia moment of rotating He II on velocity and an estimation of relaxation time would be most desirable. This problem could be solved by studying the damping of the rotation of a glass with He II which is the nearest approach to the continuous equilibrium between the normal and the superconductive component. As relaxation time was not known, the rotating system had to have sufficiently low damping. For this purpose a plexiglass vessel was suspended in a magnetic field which warranted rotation of the vessel for several hours after an initial velocity of several revolutions per second had been imparted to it. The vessel ($R = 1,5$ cm) contained about 300 light aluminium disks which were arranged at a shorter distance than the depth of penetration of the viscous wave. With the help of a rotating magnetic field the rotation velocity of the vessel containing the He II was brought up to the assumed value, after which the field was switched off. Under these conditions only the normal component of the He II could at first be taken away with the disks, but with its supraliquid component this was possible only after relaxation time. If relaxation time exceeds the time of screwing-out (?), it was obvious that, with a growing distance of the supraliquid component, a consider-

10

AUTHORS: Yesel'son, B. N., Shvets, A. D., Bablidze, R. A. 56-1-38/56

TITLE: On the Film Flow Rate in Solutions of Helium-Isotopes
(O skorosti perenosa po plenke u rastvorov izotopov geliya)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958,
Vol. 34, Nr 1, pp. 233-234 (USSR)

ABSTRACT: The influence of He^3 dissolved in He II upon the film flow is, as is well-known, reduced to the decrease in the flow rate. It was of a certain interest to investigate this fact more thoroughly and therefore the authors made tests with a solution of helium-isotopes with a helium content of 1,5; 4,7; 7,0 and 9,6 %. The apparatus used for these tests consists of two elbows of a thin-walled capillary tube (diameter 1,08 mm) of equal lengths communicating over a helium-film. The film flow rate $R = v\delta$ was measured by the measurement of the rate of change of the liquid level in one of these elbows. In this connection v signifies the rate of the motion of the film and δ - the thickness of the film. The temperature interval immediately following the λ -point was investigated. The results obtained here are illustrated in two diagrams. One of these diagrams

Card 1/3

On the Film Flow Rate in Solutions of Helium-Isotopes

56-1-38/56

illustrates the dependence of the film flow rate on the temperature and the other diagram - the dependence of the film flow rate on the content of He^3 . According to the results found here the film flow rate increases with increasing concentration of He^3 . When having data on the dependence of the density on the temperature for the solutions of the helium-isotopes, the following conclusions can be drawn: The film flow rate in the temperature range investigated here is directly proportional to the density of the superliquid component: $R = A \rho_s / \eta$, where $A = 3,2 \cdot 10^{-5} \text{ cm}^3/\text{cmsec}$. Moreover the temperature of the phase transition He I - He II for the solutions given here might be determined from the beginning of overflowing over the film. The values obtained in this connection are in satisfactory agreement with the analogous results obtained by other methods. There are 2 figures, 2 tables, and 5 references, 4 of which are Slavic.

ASSOCIATION: Physical-Technical Institute AN Ukrainian SSR
(Fiziko-tekhnicheskii institut Akademii nauk Ukrainiskoy SSR)

Card 2/3

On the Film Flow Rate in Solutions of Helium-Isotopes

56-1-38/56

SUBMITTED: October 5, 1957

AVAILABLE: Library of Congress

Card 3/3

24 (0)

AUTHORS: Tesel'son, B. N., Shvets, A. D. SOV/56-37-1-61/64

TITLE: The Use of a Superconductive Ring for Recording the Phase Transition in Liquid Helium (Ispol'zovaniye sverkhprovodyashchego kol'tsa dlya registratsii fazovogo perekhoda v zhidkom gelii)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 323 - 324 (USSR)

ABSTRACT: For the purpose of investigating the properties of He^3 -solutions in He^4 , and especially for the purpose of investigating the properties of rotating helium, a ring made from a superconductor may be used (A. A. Galkin, Ya. S. Kan and B. G. Lazarev worked with a lead ring for the purpose of investigating the transition into the superconductive state and measuring the thermal conductivity of copper). The ring is especially well suited for recording phase transitions if its current-conduction properties are known. The authors of the present "Letter to the Editor" describe experiments carried out with a lead ring in a plexiglass container with liquid helium at 1.5°K in the case of a slow transition from He II to He I. The experi-

Card 1/2

The Use of a Superconductive Ring for Recording the Phase Transition in Liquid Helium

SOV/56-37-1-61/64

mental results are shown by a diagram. It shows the deviation α of the mirror galvanometer connected to the immobile coil in dependence on the time t (during which helium temperature increases). The curve $\alpha(t)$ has a slight α -decrease with an increase of helium temperature from 1.5°K to the λ -point (from $t=0$ to $t=17.5$ min), after which there is a sharp increase (to about 30 times its amount) in the λ -point, corresponding to the jump of thermal conductivity at this point. This narrow and steep peak is followed by a second small maximum; At $T = 3.73^\circ\text{K}$ and $t = 36.5$ min, α decreases to zero. In these experiments helium was heated by light; in the case of electrical heating, the peak in the λ -point of the $\alpha(t)$ -curve does not exist. The authors finally thank Professor B. G. Lazarev for discussing the results. There are 1 figure and 2 Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR
(Physico-technical Institute of the Academy of Sciences,
Ukrainskaya SSR)

SUBMITTED: May 13, 1956
Card 2/2

34 3405

5/120/61/006/006/026/041
EO32/E114

AUTHORS: Vesel'son B.N., Shvets, A.D., and Berezhnyak, N.G.

TITLE: An He³ apparatus for the production of temperatures down to 0.3 °K

PERIODICAL: Priroda i tekhnika eksperimenta no.6, 1961, 123-124

TEXT: The apparatus is illustrated in the figure. About 2 litres of gaseous He³ supplied by the cylinders 1 are condensed into the copper container 2 which is located inside the vacuum envelope 3 and is maintained at the temperature of the outer bath (2.3 °K). Since at this temperature the vapour pressure of He³ is greater than the pressure at which diffusion pumps begin to operate, there is an additional He⁴ bath 4 whose temperature may be reduced to 1 °K by pumping the vapour through a diaphragm by the DRN-50 (DRN-50) pump 5. The valve 6 is used to fill this bath with liquid He⁴ from a dewar. Under these conditions the vapour given off by liquid He³ may be pumped by the mercury diffusion pump (Leybold) 7 which has a pumping speed of about 15 litres/sec. Mercury vapour is excluded by liquid nitrogen traps. The He³ vapour pumped by 7 is

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10255

S/120/63/000/006/026/041
E032/E114

An He^3 apparatus for the production

continuously removed by the liquid-hydrogen cooled charcoal pump 8 containing about 50g of activated charcoal. In this way the He^3 gas can be recovered and returned into the reservoirs 1. The use of these absorption pumps greatly simplifies the design of cryostats containing He^3 . It was found convenient to use a solution of He^3 in He^4 instead of pure He^4 as the cooling medium. To do this, a mixture containing 7.4% of He^3 was condensed through the tube 9 into the glass reservoir 10 which was sealed into the He^3 container through a Kovar seal. Since this cryostat was used to study the properties of He^3 - He^4 mixtures, the reservoir 10 contained the glass vessel 11 which was filled with the mixture under investigation through the tube 12. It was found that the minimum temperature was 0.4°K and could be maintained for about 6 hours, which is much longer than the period obtained with He^4 as the cooling liquid. The lower temperature of 0.3°K was obtained by pumping the vapour given off by liquid He^4 placed in a very small glass dewar connected to the pumping system described above. The latter temperature could be maintained for over 2 hours. Temperatures measured

Card 2/04

33155

S/120/61/000/006/026/041

EO32/E114

An He³ apparatus for the production

1 and 0.4 °K could be obtained by adjusting the pumping speed of the diffusion pump with the aid of the valve 13. In all the experiments the temperature was determined by measuring the He³ vapour pressure with a McLeod gauge (Ref. 14 S. G. Sydorak, T.R. Roberts, Phys. Rev., v. 106, 1957, 175). In one of the experiments the He³ vapour was pumped by the absorption pump only the pump being cooled by liquid helium (4.2 °K). In spite of the long and narrow connecting pipe, a temperature of 0.4 °K was obtained. This indicates that He³ cryostats can be considerably simplified by using absorption pumps only. Acknowledgments are expressed to B. G. Lazarev for his advice. There are 2 figure and 14 references: 6 Soviet-bloc and 8 non-Soviet-bloc. The four most recent English language references read as follows:

- Ref. 8. G. Seidel, P.H. Keesom,
Rev. Scient. Instrum., v 29, 1958, 606.
Ref. 10. H.A. Reich, R.L. Garwin,
Rev. Scient. Instrum., v 30, 1959, 7.

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33155

An He³ apparatus for the production... S/120/61/000/006/025/041
E032/E114

Ref. 13. G. I. N. v. d. Meydenberg, K. W. Taconis
7th Intern. Conf. on Low Temp. Phys., Toronto
Programme, 1960.

Ref. 14. as in text above.

ASSOCIATION: Fiziko tekhnicheskiy institut AN USSR
'Physicotechnical' Institute, AS Ukr SSR

SUBMITTED: January 28, 1961

Card 4/6 11

33168

S/120/61/000/006/036/041
E039/E485

24 5600

AUTHORS: Shvets, A.D., Kashirin, V.B.

TITLE: A magnetic suspension for investigations at low temperatures

PERIODICAL: Priory i tekhnika eksperimenta, no.6, 1961, 144-148

TEXT: An arrangement is described in which the apparatus is suspended by a magnetic field and is capable of being used at low temperatures. In this particular case, it is used in an experiment to determine the moment of inertia of rotating liquid helium II. [Abstractor's note: The experimental results are not given.] The apparatus to be suspended is attached to a ferromagnetic cylinder which is supported by the field of an electromagnet. When the cylinder moves from its equilibrium position, the magnetic field is automatically changed in such a way as to return the cylinder to its original position. The control of the electromagnet is accomplished by means of an inductive coil which surrounds the ferromagnetic cylinder. This coil is included in the grid circuit of an oscillator in an electronic control unit and the electromagnet is included in the anode circuit of its output valve. The changes in amplitude of the Card 1/3

A magnetic suspension

³³¹⁶²
S/120/61/000/006/036/041
E039/E485

oscillations generated, which depend on the distance between the ferromagnetic cylinder and the centre of the controlling coil, produce the required change in current through the electromagnet. The liquid helium apparatus is briefly described and consists essentially of a plexiglass bucket, which contains the liquid helium, attached to the ferromagnetic cylinder by means of a duralumin tube. The whole of this suspended system can be brought into rotation by an external rotating magnetic field. The number of revolutions of the suspended system is also counted electronically. The signal to the electronic counting unit is obtained from a condenser, which consists of two brass plates (10 x 5 mm) placed one on each side of the system just below the control coil. Another metal plate attached to the suspended system rotates between these plates, producing two changes in capacity for each revolution. Acknowledgments are expressed to K.D.Sidel'nikov for advice. There are 3 figures and 7 references: 1 Soviet-bloc and 6 non-Soviet-bloc. The four most recent references to English language publications read as follows: Ref. 4: J.W.Beams, J.L.Young, J.W.Moore, J. Appl. Phys., v.17, 1946, 886; Ref. 5: J.W.Beams, Rev. Scient. Instrum., v.21, Card 2/3

A magnetic suspension

33162
S/120/61/000/006/036/041
E039/E483

1950, 182, Ref. 6, J.W. Beams, Phys. Rev., v. 78, 1950, 471
Ref. 7, J.W. Beams, Rev. Scient. Instrum., v. 26, 1955, 1181

ASSOCIATION Fiziko-tekhnicheskiiy institut AN UkrSSR
(Physicotechnical Institute AS UkrSSR)

SUBMITTED: April 7 1961

Card 3/3

YESEL'SON, B.N.; LAZAREV, B.G.; SHVETS, A.D.

Obtaining lower than 1° K. temperatures by pumping-off liquid
helium vapors with an adsorption pump. Prib.i tekhn.eksp. 6
no.5:160-162 S-0 '61. (MIRA 14:10)

1. Fiziko-tekhnicheskii institut AN USSR.
(Low temperature engineering)

S/120/62/000/³⁰¹⁷¹003/048/048
E032/E114

9.5110

AUTHORS: Yesel'son, B.N., Lazarev, B.G., and Shvets, A.D.

TITLE: A simple He³ cryostat

PERIODICAL: Pribery i tekhnika eksperimenta, no.3, 1962, 198-199

TEXT: It is pointed out that existing He³ cryostats capable of producing temperatures down to 0.3 °K are rather complicated because they incorporate diffusion pumps and/or rotary pumps to pump the vapour above liquid helium and thereby reduce the temperature. The present authors have used a charcoal adsorption pump to remove the vapour and thereby have simplified the construction and succeeded in producing temperatures down to 0.34 °K. The device is shown in the figure, in which:
1 - charcoal pump; 2 - thin-walled stainless steel tube;
3 - reservoir containing He³; 4, 10 - cylinders for storing helium gas; 5 - vacuum jacket; 6 - valve connecting the charcoal pump 1 to the reservoir 3; 7 - dewar with liquid helium at 1.3 °K; 8 - container filled either with He³ - He⁴ solution (7.4% He³) or pure He⁴; 9 - not given; 11 - tube for removing helium gas.

Card 1/3

37097

S/056/62/042/004/003/037
B102/P104

24.5600
514900
AUTHORS:

Yesel'son, B. N., Ivantsov, V. G., Shvets, A. D.

TITLE:

The λ -point of concentrated He^3 - He^4 solutions

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 4, 1962, 944-948

TEXT: The authors continue earlier investigations (ZhETF, 20, 748, 1950; DAN SSSR, 111, 568, 1956; ZhETF, 31, 902, 1956; ZhETF, 34, 233, 1958) of the $\text{He I} \rightarrow \text{He II}$ transition point (T_λ) as dependent on the He^3 concentration (X). The $T_\lambda(X)$ dependences were then determined for higher He^3 concentrations (50.0, 59.6, 62.4%). T_λ of the He -solution with known He^3 content was determined from the particularities of the heating or cooling rate curves which were recorded by an ЭПМ-09 (EPP-09) electronic potentiometer. The measurements were carried out in an apparatus consisting of several Dewar vessels in which temperatures below 1°K could be reached by pumping out the vapor above the liquid He^4 by an adsorption pump. For the above He^3 concentrations the T_λ values were $1.31 \pm 0.01^\circ\text{K}$, $1.05 \pm 0.01^\circ\text{K}$ and $1.02 \pm 0.03^\circ\text{K}$. For a solution with $X = 66.1\%$, T_λ could

Card 1/2

S/056/62/042/006/012/047
B104/B102

AUTHORS: Semenenko, Ye. Ye., Sudovtsov, A. I., Shvets, A. D.
TITLE: Temperature dependence of the electrical resistivity of iron
in the region of 0.38 to 4.2 °K
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 6, 1962, 1488 - 1489

TEXT: Temperatures were reduced by pumping out He³ vapor from the
experimental apparatus by means of a carbon absorption pump. For a
measuring current of 150 ma and with compensated earth field, the residual
electrical resistance of the very pure iron specimen is given by
 $R(0^{\circ}\text{K})/R(0^{\circ}\text{C}) = 3.9606 \cdot 10^{-3}$; $R(0^{\circ}\text{K}) = 1.2595 \cdot 10^{-3}$ ohm. The voltages were
measured to an accuracy of 10^{-8} volt by using a compensation circuit. The
temperature was ascertained to an accuracy of 10^{-2} °K from the helium
pressure. The temperature dependence of the resistance can be represented
by $R = 3.9606 \cdot 10^{-3} + 3.1 \cdot 10^{-6}T + 1.1 \cdot 10^{-6}T^2$. The linear term in $R(T)$ is

Card 1/2

S/056/63/044/002/016/065
B102/B186

AUTHORS: Yesel'son, B. N., Ivantsov, V. G., Shvets, A. D.
TITLE: The surface tension of He^3 - He^4 solutions
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 2, 1963, 483-486

TEXT: The authors continue previous investigations (DAN SSSR, 99, 365, 1954) where they had measured the surface tension in an He^3 - He^4 mixture up to 3% He^3 ; now they measured it up to 75% He^3 . The experimental apparatus was the same as before, only some variations in size having been made. A temperature regulator kept the temperature constant with an accuracy of $5 \cdot 10^{-6}$ °K. The surface tension σ was calculated with the relation $2\sigma(1/b_1 - 1/b_2) = (\rho_l - \rho_v)gh$, where b_1 and b_2 are the radii of curvature of the lowest points of the menisci of the two capillaries ($r_1 = 2.69$ mm, $r_2 = 0.12-0.22$ mm), ρ_l and ρ_v are the liquid vapor densities, g the gravity constant and h the distance between the lowest
Card 1/2

The surface tension of ...

S/056/63/044/002/016/065
E102/B186

points of the menisci. The errors in measurement were not above 4%, for He^3 concentrations up to 20% only about 1%. The $\alpha(T)$ curves were measured for 1.0, 15.0, 19.0, 50.0, and 75.7% He^3 between 1.5 and 4.2 °K; they lie lower, the higher the He^3 content, between the curves for the pure components. The results are compared with the theory of I. Prigogine (Ann. N.Y. Acad. Sci., 9, 1, 347, 1950). Agreement is found only for He^3 concentrations up to about 10%. There are 4 figures.

NUCREF 20: September 12, 1962

Card 2/2

L 22103-66 EWT(1) IJP(c) WW/GG

ACC NR AP6012938

SOURCE CODE: UR/0120/65/000/002/0202/0204

AUTHOR: Shvets, A. D.; Antipin, A. A.; Kirillov, Ye. I.; Stepanov, V. G.; Chirkin, G. K.

49
B

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR);
Kazan' State University (Kazanskiy gosudarstvennyy universitet)

TITLE: Low temperature device for studying EPR

SOURCE: Pribory i tekhnika eksperimenta, no. 2, 1965, 202-204

TOPIC TAGS: electron paramagnetic resonance, cryogenic device, crystallography

ABSTRACT: A device is described and diagrammed which is designed to study electron paramagnetic resonance in the 8 mm wavelength range in crystals at low temperatures, down to 0.314° K. For the experiments, the sample under study is attached to a column in a millimeter band resonator, attached at two places to a thin-walled stainless steel tube 16 mm in diameter. The resonator is tuned by moving Melchior waveguides, a communicating diaphragm, and piston. The resonator, column, piston, and diaphragm are made of silvered brass. The lowest temperature is obtained by evacuation of vapor over liquid He³ with an adsorption pump. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 20 / SUBM DATE: 27Jul64 / ORIG REF: 001

Card 1/1 Bw6

UDC: 536.483

2

L 1137-66 EWT(d)/EWT(1)/EWT(m)/EWP(w)/EPF(c)/EEC(k)-2/EPF(n)-2/T/EWP(t)/EWP(b)
TJP(c) JD/WW/GG

ACCESSION NR: AP5016389

UR/0120/65/000/003/0139/0141

539.1.078:539.19

44,65 44,86
AUTHOR: Korepanov, V. D.; Chernitsyn, A. I.; Shvets, A. D.

TITLE: Equipment for investigating NMR at temperatures down to 0.3K

21,44,65
SOURCE: Pribery i tekhnika eksperimenta, no. 3, 1965, 139-141

TOPIC TAGS: NMR, low temperature research, low temperature physics

ABSTRACT: The equipment for obtaining near-0.3K temperatures was described in PTE, 1962, no. 3, 198. A temperature of 1.2-15K is attained by exhausting liquid-He³ vapor in a cryostat; the vapor condenses in a dewar vessel. The condensate is further evaporated, with the vapor adsorbed by a carbon pump, which brings the final temperature down to 0.315K for 4 hours or more. NMR can be measured on He³ nuclei in liquid, gas, and solid specimens. The same outfit permits measuring NMR at 4.2-1.4K, 20.4-14K, and 77-63K. NMR is studied by a pulse method, with a 4-μsec 90° pulse and a receiver passband of 100-200 kc; the resonance frequency of F¹⁹ nuclei is 13.5 Mc. "The authors wish to thank S. A. Shigimaga and Ye. I. Kirillov for their great help in building and mounting the equipment."
Orig. art. has: 2 figures.

Card 1/2

L 1137-66

ACCESSION NR: AP5016389

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kasan' State University);
Fiziko-tehnicheskii institut AN UkrSSR, Khar'kov (Physics Technical Institute,
AN UkrSSR) 44,55

SUBMITTED: 07May64

ENCL: 00

SUB CODE: TD, NP

NO REF SOV: 005

OTHER: 000

Card 2/2

L 11959-66

ACC NR: AP5026599 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG/GG

SOURCE CODE: UR/0056/65/049/004/1091/1093

AUTHORS: D'yakov, I. G.; Shvets, A. D.

ORG: Physicotechnical Institute, Academy of Sciences, Ukrainian SSR
(Fiziko-tekhnicheskii institut Akademii nauk Ukrainsskoy SSR)

TITLE: Investigation of superconducting properties of molybdenum

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49,
no. 4, 1965, 1091-1093

TOPIC TAGS: molybdenum, superconductivity, critical magnetic field, impurity conductivity, metal zone melting, electric resistance, temperature dependence

ABSTRACT: In view of the contradictory published data concerning the effect of purity and isotopic composition of molybdenum on its superconductivity, the authors investigated the superconducting properties of very pure molybdenum ($\sim 99.9999\%$, $R(4.2K)/R(293K) = 6 \times 10^{-5}$) prepared by zone melting, using a technique described elsewhere (FMM, in press). The electrical resistance was measured by a null method with a circuit whose sensitivity was $\sim 1 \times 10^{-7}$ volt. Temperatures below 1K were obtained by pumping-on He^4 vapor. The critical temperature was found to

Card 1/2

L 11959-66

ACC APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001550410007-8

be 0.916K and the width of the transition region was 0.002K. (Phys. Rev. v. 129, 1025, 1963). The same sample was used also to measure the temperature dependence of the critical magnetic field in an external longitudinal field, and it was found that the experimental points fit quite well a straight line when plotted in the coordinates proportional to the field and to the square of the temperature. Extrapolation yields a value of 86 Oe for the critical field at zero temperature. Impurities are shown to lower the value of the critical temperature. Authors thank T. A. Sverbilova of the Khar'kov State University for participating in the experiments, and Laboratory assistants L. S. Kiryakov and S. A. Shigimaga for preparing the samples and adjusting the apparatus. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 26May65/ NR REF SOV: 005/ OTH REF: 006

Card

2/2

SHVETI, A.L.

Use of the method of pumping out vapors over liquid He
to obtain temperatures below 1°K. (Review). Prib. i tekhn.
eksp. 10 no.5:5-12 S-O '65.

(Prib. 19:1)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.
Submitted Oct.21, 1964.

ACC NR: AP6034251

(A) SOURCE CODE: UR/0120/66/000/005/0245/0248

AUTHOR: Shvets, A. D.

ORG: Physico-Technical Institute, AN UkrSSR, Khar'kov (Fizichsko-tekhnicheskiy institut AN UkrSSR)

TITLE: Equipment for generating temperatures from 4.2 to 0.3°K

SOURCE: Pribory i tekhnika eksperimenta, no. 5, 1966, 245-248

TOPIC TAGS: cryogenic device, cryogenic liquid cooling, cryogenics, cryostat, liquid helium, evaporative cooling

ABSTRACT: Two versions of cryogenic devices with no moving parts for the generation of temperatures from 4.2 to 0.3°K using carbon adsorption pumps are described. Utilizing liquid He⁴, temperatures down to 0.87°K can be obtained; this value can be further reduced to 0.3°K with He³. Both versions of the pump consists of several concentric dewar containers. The outer dewar is filled with liquid nitrogen, the inner with liquid He⁴. Within the inner dewar is a thin-walled metal hemisphere filled with carbon and connected through a valve with a small dewar cylinder also filled with He⁴. The carbon is cooled to the liquid helium temperature and thus readily adsorbs helium vapor rising from the cylindrical dewar, which leads to the gradual lowering of the temperature in this container. This method cooled helium down to 0.9°K. To reach 0.3°K,

UDC: 621.59

Card 1/2

ACC NR. AP6034291

a two stage pump, similar to the one already described, is used. In this pump, the inner dewar is filled with He^3 , as is a small container within the attached cylindrical dewar. He^4 is introduced into a second small container in the same dewar. This container is also connected to the hemisphere filled with carbon. Due to adsorption of vapor from both containers, the temperature of He^3 can be lowered to 0.3°K . Orig. art. has: 3 figures.

SUB CODE: 20/

SUBM DATE: 13Sep65/

ORIG REF: 006/

OTH REF: 005

Card 2/2

SHVETS, A. S. agronom

....

On the way toward large crop yields. Zernedelle 26 no.5:
37.40 My '64. (MIRA 17:6)

SHVETS, A.G.

Practices in the application of fertilizers in Tarashcha District.
Zemledelie 25 no.1:70-74 Ja '63. (MIRA 16:4)
(Tarashcha District--Field crops--Fertilizers and manures)

GIDALEVICH, M. G.; DUL'NEVA, I. P.; ZASLAVSKIY, A. S.; UL'YANKIN, M. G.;
Prinimali uchastiye: ZELENSKAYA, M. I.; SHCHELOKOVA, I. M.;
DAVILOV, M. A.; SHVETS, A. G.

Investigating the efficiency of grape washing. Trudy MNIIPP 1:
39-44 '61. (MIRA 16:1)

(Moldavia--Grape Juice)

SHVETS, A.G., nauchnyy sotrudnik

Efficient use of fertilizers in the Ukraine. Zemledelie 25 no.7:87-
90 J1 '63. (MIRA 16:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut zemledeliya.
(Ukraine--Fertilizers and manures)

L 8401-65 EWT(1)/EPA(b)/FCS(k)/EWA(1) Pd-4 ASD(p)-3/BSD/ASD(d)/AEDC(a)/
 ASD(f)/AFTG(a)/SSD/AFETR/AFWL
 ACCESSION NR: AP4043887 S/0179/64/000/004/0029/0032

AUTHOR: Shvets, A. I. (Moscow)

TITLE: Supersonic flow past ellipsoids

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 4, 1964, 29-32

TOPIC TAGS: supersonic flow, shock wave, detached shock wave, flow past ellipsoid, bow shock wave, mixed flow

ABSTRACT: The supersonic flow past families of oblate ellipsoids of revolution with half-axis ratios $t=0.49, 0.34, \text{ and } 0.19$ and the positions of the detached shock waves have been experimentally investigated at free-stream Mach numbers between $2.0 \cdot 10^6$ and $2.5 \cdot 10^6$. Graphs of the pressure distribution c_p/c_{p0} , the tangential and normal force coefficients c_t and c_n , and the effect of oblateness on $dc_n/d\alpha$ were plotted. The shapes and positions of the bow shock waves were analyzed from direct shadow photographs at zero angle of incidence and

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L 8401-65

ACCESSION NR: AP4043887

plotted together with the experimental data of others. Calculations of the mixed flow behind a shock wave were made by numerical methods on a computer. The results are in fair agreement with available theoretical and experimental data. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 30Mar64

ATD PRESS: 3101

ENCL: 00

SUB CODE: ME

NO REF SOV: 002

OTHER: 006

Card 2/2

ACCESSION NR: AP4042057

S/0055/64/000/004/0042/0048

AUTHOR: Shvets, A. I.

TITLE: Pressure distribution over surfaces of ellipsoids

SOURCE: Moscow, Universitet. Vestnik. Seriya 1. Matematika, mekhanika, no. 4, 1964, 42-48

TOPIC TAGS: supersonic flow, pressure distribution, shock wave, ellipsoidal flow, sonic point

ABSTRACT: The results of an experimental investigation on supersonic flow past models of oblate ellipsoids in the range of Mach 1.48—3.02 and Reynolds numbers from 2.0 to $2.5 \cdot 10^6$ are presented. The pressure distribution over the surfaces of ellipsoids and its space pattern at various angles of attack set by rotating the model around its axis were determined. The flow field between the body and shock front and the position of the sonic point depending on the ratio of ellipsoid half axes were considered. Comparison of the experimental results with theoretical calculations using the Newton formula and data obtained by others is presented in graphs. It is

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ACCESSION NR: AP4042057

shown that the elongation of the ellipsoid ($\epsilon \rightarrow 1$) as well as the increase in velocity lead to a decrease in the subsonic region and draw the sonic point nearer to a critical point. Orig. art. has: 6 figures and 2 formulas.

ASSOCIATION: Otdel aeromekhaniki NIIM MGU (Aeromechanics Section, NIIM MGU)

SUBMITTED: 03Aug63

ATD PRESS: 3066

ENCL: 00

SUB CODE: ME

NO REF SOV: 002

OTHER: 003

Card

2/2

L 11265-65 EWT(i)/EWP(m)/EWA(d)/FCS(k)/EWA(i)

ACC NR: AP6002367

SOURCE CODE: UR/0207/65/000/006/0122/0125

AUTHOR: Gonor, A. L. (Moscow); Shvets, A. I. (Moscow)

63
53

OKG: none

TITLE: An investigation of pressure distribution on certain starlike bodies at nearly
4 M

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1965, 122-125

TOPIC TAGS: aerodynamics, supersonic flow, shock tube, angle of attack, pressure distribution, wave drag, aerodynamic boundary layer, shock wave

ABSTRACT: The results of an experimental investigation of pressure distribution on star-like bodies (see Fig. 1) in supersonic flows in an aerodynamic wind tunnel at $M = 3.85 \pm 0.1$ and $Re = 6.0 \times 10^6$ are presented. The models, experimental setup, and measuring techniques are described in detail. Pressure measurements were obtained by manometers with tetrabromoethane liquid (density = 2.96 g/cm^3). The boundary layer effect upon the flow structure for various angles between wings is investigated and shock wave structures for various angles of attack (from 5 to 15°) are analyzed. A comparison of the experimental results with the exact theoretical data obtained previously by the author shows good agreement for all models. The ratios between the wave drags of equivalent circular cones and wave drags of models calculated from

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L 11265-66

ACC NR: AP6002367



Fig. 1. Star-shaped models

experimental data indicate that in certain cases predicted by theory the wave drag is reduced several times. [AB]

SUB CODE: 20 / SUBM DATE: 25Jul65/ ATD PRESS: 4170

Card 2/2

L 20760-66 EWP(m)/EWT(1)/EWA(d)/EWA(1) WW

ACC NR: AP6007549

SOURCE CODE: UR/0198/66/002/001/0099/0105

AUTHOR: Panov, Yu. A. (Moscow); Shvets, A. I. (Moscow)

ORG: none

TITLE: Separation of the turbulent boundary layer in a supersonic flow

SOURCE: Prikladnaya mekhanika, v. 2, no. 1, 1966, 99-105

TOPIC TAGS: supersonic flow, turbulent boundary layer, boundary layer separation

ABSTRACT: Experimental data on the interaction between shock waves and the turbulent layer in a supersonic flow is analyzed. A single relationship for determining the critical value of the shock intensity at which the separation of the boundary layer occurs, is obtained, in relation to the Mach number of the oncoming flow. The cases of an incident shock wave (see Fig. 1) and a supersonic flow around a vertical shoulder (Fig. 2) are considered; 1 - incident shock wave, 2 - shock causing separation of the boundary layer, 3 - stagnation zone, 4 - expansion-shock fan, 5 - reflected shock wave (boundary layer shown by dotted line); δ is the boundary-layer thickness. The mechanisms of the flow separation in both cases are described, the effects of flow and shock parameters (density, velocity, Mach number, pressure gradient, viscosity)

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L 20760-66

ACC NR: AP6007549

are discussed, and a formula for the critical pressure drop is derived by using

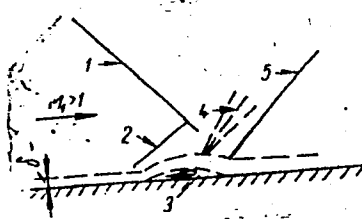


Fig. 1

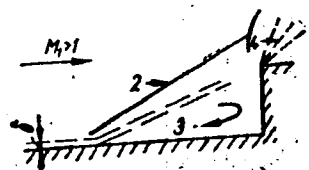


Fig. 2

dimensional analysis. The effects of Reynolds and Mach numbers on the flow in the stagnation zone and on the separation phenomenon are analyzed. Orig. art. has: [03]
8 figures and 14 formulas.

SUB CODE: 20/ SUBM DATE: 15Apr65/ ORIG REF: 003/ OTH REF: 015/ ATD RPRESS: 4224

Card

2/2

ENT(a)/ENT(l)/ENP(r)/ENT(w)/ENP(w)/ENP(v)/ENP(k)/ENP(s)/ENP(m)-6/

ACC NR: AP6010852 SOURCE CODE: UR/0421/66/000/001/0130/0137

ENP(l) IJP(c) WW/EM

AUTHOR: Shvets, A. I. (Moscow)

ORG: none

TITLE: Investigation of flow past elliptic cones

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 1, 1966, 130-137

TOPIC TAGS: aerodynamics, transonic flow, supersonic flow, wind tunnel, conic flow, linear equation, shock wave structure

ABSTRACT: An experimental investigation of three-dimensional transonic and supersonic flows past elliptic cones in an aerodynamic wind tunnel is presented. Six models of elliptic cones with different eccentricities and half-cone angles $\epsilon = 15^\circ, 22^\circ 30',$ and 30° were investigated at $M = 0.58, 0.97, 1.19, 1.47, 3;$ Re from 1.2×10^6 at $M = 0.58$ to 3.0×10^6 at $M = 3;$ angle of attack α from 0 to $15^\circ;$ angle of roll ϕ from 0 to 45° and angle of yaw $\beta = 0, 5, 10$ and $15^\circ.$ The results are presented in graphs and compared with available theoretical and experimental data obtained by many authors. The comparisons show that the nonlinear thin-body theory agrees satisfactorily with experimental data for slender elliptic cones in a limited range of $M;$ however, as may be seen from Fig. 1, the theoretical values lie substantially lower than the ex-

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L 22709-66

ACC NR: AP6010852

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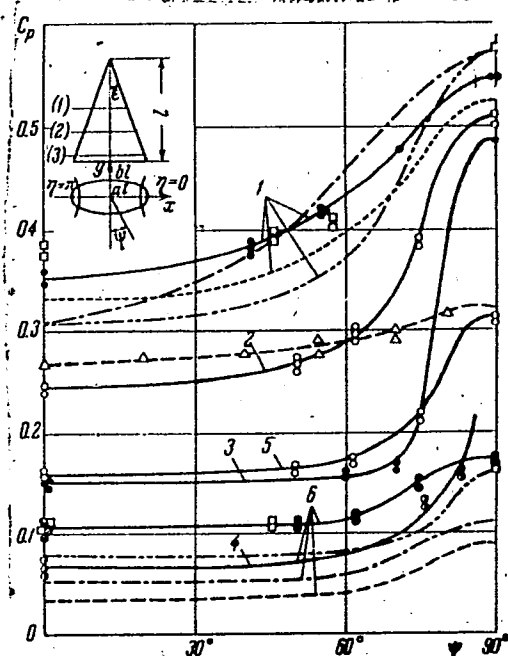


Fig. 1. Pressure coefficient at $M = 3.0$ for all six models

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L 22709-66

ACC NR: AP6010852

perimental values, in proportion to the increases in flow velocity and cone width. Various methods used for calculating supersonic and hypersonic flows around conic bodies are reviewed, analyzed, and at times compared. Comparisons of methods such as tangential and equivalent-cone with the improved equivalent-cone method of Willi F. Jacobs show that the results of the first two agree satisfactorily with experiment only for bodies which do not deviate substantially from circular cones, though those obtained by the third method agree much better with experimental data (dotted line, Model 1, Fig. 1). Optical investigations of all models at low M numbers showed that the shock fronts retain the same form of nearly circular cones and the local angle of the compression shock depends more on surface distribution along the body axis than on the shape of the body cross section. As the flow velocity increases, the shape of the shock wave in the section normal to the direction of flow approaches the shape of the body and the compression shock takes a conic, nonaxisymmetric form. Orig. art. has: 9 figures and 2 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 26Mar65/ ORIG REF: 006/ OTH REF: 015/
ATD PRESS: 4229

Card

3/3

BK

L 31822-66 EWT(d)/EWT(1)/EWP(m)/EWT(m)/EWP(w)/EWP(k) WW/EM
ACC NR: AP6020729 SOURCE CODE: UR/0421/66/000/003/0098/0102

AUTHOR: Gonor, A. L. (Moscow); Shvets, A. I. (Moscow)

ORG: none

TITLE: Investigation of the shock wave system in supersonic flows around star-shaped bodies

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 3, 1966, 98-102

TOPIC TAGS: supersonic aerodynamics, aerospace structure, pressure distribution, wind tunnel, attached shock wave, reflected shock wave, flow structure

ABSTRACT: The results of an experimental investigation of the flow structure around bodies with star-shaped cross sections in supersonic

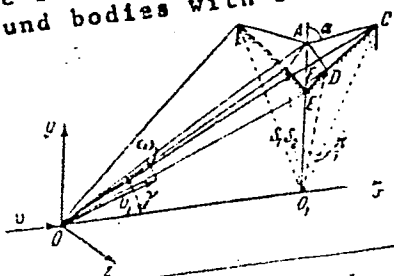


Fig. 1. Flow field and model.

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Three models of V-shaped wings. The experimental set-up

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L 31822-66

ACQ NR AP6020729

Investigated at angles of roll $\phi = 0, 10, 15, 30, \text{ and } 45^\circ$ in order to obtain a three-dimensional flow structure. The results presented in Schlieren photographs, charts, and graphs are discussed; an analysis of this material shows that the deviation of the Mach number from its theoretical value, the effects of viscosity, inaccuracy of the models, and the presence of a small angle of attack lead to realization of a flow pattern which is formed by a system of intersecting and reflected shock waves (Fig. 2). Good agreement was found between theory and experiment on pressure distribution. Orig. art. has: 8 figures and 5 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 09Jun65/ ORIG REF: 006/ OTH REF: 001/
AID PRESS: 5020

Card 3/3 20

ACC NR: AP7000039

SOURCE CODE: UR:0055/66/000/006/0085/0089

AUTHOR: Shvets, A. I.

ORG: Department of Aeromechanics, NIIM (Kafedra aeromekhaniki NIIM)

TITLE: Three-dimensional flow past blunt-nosed cones

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no. 5, 1966, 85-89

TOPIC TAGS: supersonic aerodynamics, detached shock wave, shock wave structure, flow analysis, hypersonic flow, aerodynamic force, pressure distribution

ABSTRACT: Experimental results of a study of supersonic flows ($M = 1.5$ to 3) past blunt-nosed cones and the positions of detached shock waves are presented in graphs and compared with available experimental and theoretical data. The models were blunted cones with 10° semiapex angles with bluntness formed by ellipsoids of revolution with semiaxis ratios $t = 0.2, 0.35$, and 0.5 . Particular attention is devoted to the problem of pressure distribution over the surfaces of the cones and the position of the detached shock waves. The aerodynamic characteristics of various cones were determined from experimental data on pressure distribution by the approximate method developed by the author (Izvestia VUZ. Mekhanika i mashinostroyeniye, no. 4, 1964). The effects of the nose shape of flow configuration and on wave drag at angles of attack $\alpha = 0, 5, 10, 15^\circ$ are presented in graphs and discussed. The

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UDC: 533.8

ACC NO. 1070000

analysis of the shock wave shape and the detachment distance from the body. Photographs show that the shape of the detached shock wave is nearly parabolic and approaches the body with increasing M and t . The shock wave shape in the initial part of conic surface is determined on the whole by the geometry of the elliptic part of the model. It is pointed out that the variation of the shock wave position due to the angle of attack is not large with respect to velocity coordinates system. Orig. art. has: 7 figures.

SUB CODE: 20/ SUBM DATE: 27Aug65/ ORIG REF: 005/ OTH REF: 002/ ATD PRESS: 5107

Card 2/2

ACC NR: AR6033805 SOURCE CODE: UR/0124/66/000/007/B052/B052

AUTHOR: Panov, Yu. A. ; Shvets, A. I.

TITLE: Experimental investigation of flow in stagnant zones

SOURCE: Ref. zh. Mekhanika, Abs. 7B387

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. teploenerg., no. 2, 1965, 161-170

TOPIC TAGS: flow structure, boundary layer, model, angle of attack, stagnant zone, supersonic flow

ABSTRACT: To explain the flow structure, a visual representation was made of the surface streamlines near step, fastened to a flat sharp plate, with the M number of the advancing flow equal to 3.01. The boundary layer on the plate was turbulent. The surface of the model was coated with oil mixed with carbon black prior to the test. A diagram of the flow around the step is presented; equations are given describing the flow in this zone. Results are presented of studies of the supersonic flow around blunt bodies at $M = 1.5$ to 3.0 at angles of attack ranging from 0 to 40 degrees. The tests results included spectra of the flow around

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ACC NR: AR6033805

models, the shape of the stagnant zone, as well as the dependence of the occurrence of separation on the lateral surface and the dependence of the coefficient of the bottom pressure on the M number of the advancing flow and the angle of attack. It was found that hysteresis takes place during the occurrence of separation on the lateral surface of the reverse cones. B. I. Bakun. [Translation of abstract]

SUB CODE: 13, 20/

Card 2/2

ACC NR. AP0001540

SOURCE CODE: UR/0108/00/002/006/0105/0111

AUTHOR: Perov, Val. N. (Moscow); Shvech, A. I. (Moscow)

ORG: Scientific Research Institute for Mechanics, MGU (Nauchno-Issledovatel'skiy Institut mekhaniki MGU)

TITLE: Investigation of base pressure near the trailing edge of axisymmetric bodies in supersonic flow

SOURCE: Prikladnaya mekhanika, v. 2, no. 6, 1966, 109-111

TOPIC TAGS: supersonic aerodynamics, supersonic flow, base pressure, wind tunnel

ABSTRACT: The results of an experimental investigation of the base pressure near the trailing edge of axisymmetric models of small aspect ratio with nose-section bluntness of various shapes are reported. The experiments were carried out in order to establish and to clarify the dependence of the base pressure and other flow parameters near the trailing edge of models in supersonic flow, on the blunt shape of the forward section, in a supersonic wind tunnel with Mach numbers ranging from 1.5 to 3.5. Cylindrical models with removable elliptical and plane front sections were used. The experimental setup and the apparatus used are described briefly. The results are presented in graphs and seem to be in good agreement with theoretical data obtained

Card 1/2

ACC NR: AP7001582

SOURCE CODE: UR/0421/66/000/006/0129/0134

AUTHOR: Panov, Yu. A. (Moscow); Shvets, A. I. (Moscow); Khazen, A. M. (Moscow)

ORG: none

TITLE: Investigation of base pressure fluctuations behind a cone in supersonic flow

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 6, 1966, 129-134

TOPIC TAGS: supersonic aerodynamics, supersonic flow, base pressure, pressure gage, pressure measurement, pressure transducer, wake flow

ABSTRACT: A detailed description is presented of a highly accurate experimental investigation of the base pressure fluctuations behind a cone of semi apex angle of 10° with aft section diameters $d = 100, 130$ and 150 mm in supersonic flow of $M = 3$. A specially designed pressure sensor was used for measuring base pressure fluctuations which uses the dependence of corona discharge parameters in a gas upon pressure. Its construction, operation and calibration are described in detail. The level of noise background of the experimental tube was measured in order to compare it with output signal of the pressure sensor, and the oscillations of the model were recorded by N-102 oscillograph with the aid of two strain gages fastened on model supports. Oscillographic recording of the base pressure fluctuation spectra are presented for the model with base of 150 mm in diameter at pressure of 5 atm, and show that the amplitude of fluctuations and frequency range increase with cone diameter. The same

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ACC NR: AP7001582

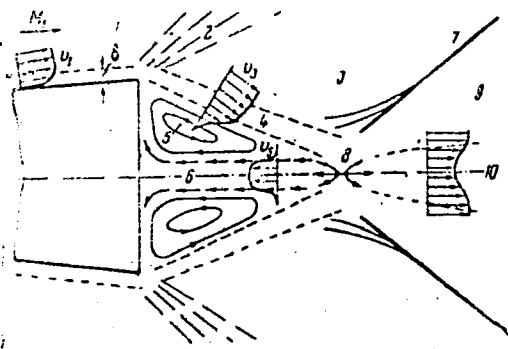


Fig. 1. Flow configuration

1 - Outer flow; 2 - Prandtl-Mayer flow region; 3 - outer flow in the base region; 4 - boundary stagnation zone; 5 - toroidal vortex; 6 - axisymmetric flow; 7 - tail shocks; 8 - stagnation point in the wake throat; 9 - outer flow behind tail shocks; 10 - turbulent wake.

pattern can be observed with increasing pressure in the mixing region. The amplitude maxima are obtained at frequencies higher than 100C, that is, they do not coincide with oscillation frequencies of the model (40—50 c). In order to throw more light on the behaviour of the flow in the base region, the flow structure behind the cone base was investigated with the aid of plates coated with a luminescent paint. The presence of an axisymmetric reverse flow coming from the wake throat to the cone base and a toroidal vortex flow occupying the region between reverse flow and dividing

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ACC NR: AP7001582

streamline (see Fig. 1) is discussed. The causes of high and low-frequency fluctuations of base pressure are analyzed and tentatively explained. Assumption is made that the total head in the reverse flow is proportional to the dynamic head of the outer flow in region 3 which ejects the gas from the stagnation region. The dynamic head in this region, in turn, is directly proportional to the pressure head of the free flow. Consequently the total energy and maximum amplitude of base pressure fluctuations should be proportional to the dynamic head of the free flow. It is said in the conclusion that the spectrum of the base pressure fluctuations represents a very complex superposition of a series of harmonic fluctuations. Orig. art. has: 7 figures. [AB]

SUB CODE: 20/ SUBM DATE: 26Jul66/ ORIG REF: 004/ OTH REF: 007/
 ATD PRESS: 5110

Card 3/3

SHVETS, A. KH.

233T41

USSR/Metallurgy - Welding, Aluminum

Jul 52

"Electric Arc Welding of Aluminum Equipment," A. Kh. Shvets, Engr

"Argon Deio" No 7, pp 19, 20

Suggests elec-arc welding as more productive method instead of gas welding. Describes application of method for welding containers 8-10 m long and up to 2,600 mm in diam with 12-20 mm thickness of walls and bottoms. Coating of aluminum electrodes is made without using water glass or dextrin because water glass, reacting with salts of coating, loses its binding

233T41

properties, and org compds of dextrin type sharply impair technological properties of electrodes. Soln of NaCl is used as binder.

233T41

KULYAGIN, K.M., starshiy inzh.; TIMOFEYEV, I.Z., starshiy elektromekhanik;
SHVETS, A.M., elektromekhanik

Use of a wave-guiding line in the communication system between car
checkers. Avtom., telem. i sviaz'5 no.5:37-38 My '61.

(MIRA 14:6)

1. Laboratoriya signalizatsii i svyazi Severo-Kavkazskoy dorogi
(for Kulyagin). 2. Batayskaya distantsiya signalizatsii i svyazi
(for Timofeyev).

(Railroads—Communication systems)

KOVAL'CHUK, N.R.; SHELESHKO, T.V.; SHALAYEV, G.I.; SHVETS, A.P.

Flooding the Borislav sandstones. Trudy VNIGMI no.12:399-412 '58.
(MIRA 12:3)

(Borislav region--Petroleum engineering)

11(c)

SOV/93-58-9-10/17

AUTHOR: Panov, M.P., Ivanitskiy, Ye.A., Shvay, L.P. and Shvets, A.P.

TITLE: The Production of Vertical Fractures by the Hydraulic Fracturing Process (Obrazovaniye vertikal'nykh treshchin pri gidrorazryve)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 9, pp 56-59 (USSR)

ABSTRACT: This is the first part of a study of the direction of fractures produced by hydraulic fracturing. The study was carried out by the industrial department of the UkrVNIGNI Institute. The laboratory experiments were carried out on a unit which was designed by E.B. Chekalyuk, an engineer, and improved by the authors of the present article. The text gives a detailed description of the experimental equipment which is shown in Figures 1-9. The experimental results will be presented in "Neftyanoye khozyaystvo," 1958, Nr 10. There are 9 figures.

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11(0)

SOV/93-58-10-9/19

AUTHOR:

Panov, M.P., Ivanitskiy, Ye.A., Shvay, L.P., and Shvets, A.P.

TITLE:

The Development of Vertical Fractures in Hydraulic Fracturing
(Obrazovaniye vertikal'nykh treshchin pri gidrorazryve)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 10, pp 39-43 (USSR)

ABSTRACT: This is a continuation of an article published in "Neftyanoye khozyaystvo", 1958, Nr 9. The present article presents the results of 16 fracturing operations carried out under laboratory conditions (Table 1). The experiments showed that all the samples developed vertical fractures, that 54.1 percent of the cases developed two fractures (Table 2), that the vertical and radial fractures were shallow, and that the fractures developed in a vertical direction in spite of an attempt to orient them otherwise. The development of the fractures in a vertical direction is in contradiction with the view of many authors who maintain that fractures must develop along the lines of the rock strata. There are 2 tables and 2 Soviet references.

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SOV/93-58-10-10/19

SHEVETS, H-S.

2

U S S R .

1525. Permanganate method for the determination of iodine in iodised salt. A. S. Schvets (*Aptekhnika* *Dzvo*, 1934, 3 (8), 35-36). Potassium iodide (≈ 0.001 per cent.) in iodised table salt is oxidised to KIO_3 with alkaline $KMnO_4$ and the iodate is determined iodimetrically. *Procedure*—To 100 ml of a 20 per cent. soln. of iodised salt, add 4 ml of 0.1 N KOH and an excess (2 ml) of 0.1 N $KMnO_4$ soln.; add 1 ml of 0.1 N HCl or H_2SO_4 and 2 ml of 0.1 N oxalic acid soln. and heat gently to destroy the excess of $KMnO_4$. To the cooled soln., add 0.2 g of KI, set aside for 3 min. in the dark, and titrate with 0.005 N $Na_2S_2O_3$, using starch as indicator. The mean error is ± 2.8 per cent. E. Hayes

Cher. Biochem., Chernovits
her Inst

MA 2/21

SHVETS, A. S.

Rapid determination of iodide in iodized salt. A. S. Shvets (Chernovitsi Med. Inst.). *Gigiena i Sanit.* 1954, No. 7, 41-3. — Dissolve a 100-g. sample in 500 ml. H_2O and filter. Take 100 ml., add 4 ml. 0.1N NaOH or KOH and 1 ml. satd. Br water, shake in a stoppered flask, add 1 ml. N HCl, shake again, add 5-10 drops 5% PhOH and 1 ml. H_3PO_4 (d. 1.6-1.7) to bind Fe^{3+} , add 4 ml. 5% KI, place in dark cupboard for 3 min., and titrate with 0.005N $Na_2S_2O_3$.
G. M. Kosolapoff

Chern Gen. Chem.